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REQUEST FOR ACCESS OF ABANDONED APPLICATION UNDER 37 CFR 1.14(a)						
	In re Application of					
SEP 1 3 2001 File Information Unit	Application Number Filed  08/332046 //-/-94  Group Art Unit   Examiner					
Assistant Commissioner for Patents Washington, DC 20231	Paper No.					
I hereby request access under 37 CFR 1.14(a)(3)(iv) to the application file record of the above- identified ABANDONED application, which is: (CHECK ONE)  (A) referred to in United States Patent Number: 62.485/6						
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# (12) United States Patent

Winter et al.

(10) Patent No.:

US 6,248,516 B1

(45) Date of Patent:

Jun. 19, 2001

#### (54) SINGLE DOMAIN LIGANDS, RECEPTORS COMPRISING SAID LIGANDS METHODS FOR THEIR PRODUCTION, AND USE OF SAID LIGANDS AND RECEPTORS

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- (\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35

U.S.C. 154(b) by 0 days.

- (21) Appl. No.: 08/470,031
- (22) Filed: Jun. 6, 1995

#### Related U.S. Application Data

(62) Division of application No. 08/332,046, filed on Nov. 1, 1994, which is a continuation of application No. 07/796,805, filed on Nov. 25, 1991, which is a division of application No. 07/580,374, filed on Sep. 11, 1990, now abandoned.

## (30) Foreign Application Priority Data

Man	11 1000	(CD)	0006444
NOV.	11, 1988	(GB)	8826444
Mar.	16, 1989	(GB)	8906034
Арг.	22, 1989	(GB)	8909217
May	15, 1989	(GB)	8911047
Jun	. 2, 1989	(GB)	8912652
Jun.	16, 1989	(GB)	8913900
Aug.	15, 1989	(GB)	8918543
Nov.	13, 1989	(WO)	PCT/GB89/01344
(51)	Int Cl7		C120 1/69
(51)	mı. Cı.	••••••	C12Q 1/68
(52)	U.S. Cl.	4	<b>35/6</b> ; 435/69.6; 435/252.33;
• •			435/441; 435/446
(58)	Field of	Search	435/240.2, 252.3,
` '			6, 69.6, 441, 446; 536/23.7,
		155/252.55,	23.4, 23.5, 23.6

#### (56) References Cited

## U.S. PATENT DOCUMENTS

4,356,270	10/1982	Itakura .
4,642,334	2/1987	Moore et al
4,656,134	4/1987	Ringold .
4,683,195	7/1987	Mullis et al
4,683,202	7/1987	Mullis .
4,704,692	11/1987	Ladner .
4,711,845	12/1987	Gelfand et al
4,714,681	12/1987	Reading .
4,800,159	1/1989	Mullis et al
4,806,471	2/1989	Molin et al
4,816,397	3/1989	Boss et al
4,889,818	12/1989	Gelfand et al
4,937,193	6/1990	Hinchliffe et al
4,946,786	8/1990	Tabor et al
4,959,317	9/1990	Sauer.

4,965,188	10/1990	Mullis et al
4,978,743	12/1990	Selbeck et al
4,983,728	1/1991	Herzog et al
5,023,171	6/1991	Ho et al

(List continued on next page.)

#### FOREIGN PATENT DOCUMENTS

2016841	11/1990	(CA).
2019323	12/1990	(CA).
0 120 694	10/1984	(EP).
0 125 023	11/1984	ÈΡ).
0 171 496	2/1986	ČΕP).
0 173 494	3/1986	ČΕP).
0 194 276 B1	9/1986	ČΕP).
0 200 362	12/1986	ČΕP).
0 201 184 B1	12/1986	ČΕΡ).
0 239 400	9/1987	ČΕP).
0 368 684	5/1990	ŒΡ).
2 137 631	10/1984	(GB).
61-104788	5/1986	(JP) .
63-152984	6/1988	(JP) .
WO 86/01533	3/1986	(wo).
WO 87/02671	• 5/1987	(wo).
WO-A	.,	( ) -
88/01649	3/1988	(WO).
WO 88/ 0663	9/1988	(wo).
WO 88/06630	9/1988	(wo).
WO 88/09344	12/1988	(wo).
WO 89/00999	2/1989	(wo).
WO 90/14424	11/1990	(wo).
WO 90/14430	11/1990	(wo).
WO 90/14443	11/1990	(wo).
WO-A	11/1/30	().
97/08320	3/1997	(WO).
>110G3Z0	3/1/91	(110).

#### OTHER PUBLICATIONS

Kokubu, F., et al, *The EMBO Journal*, vol. 7, No. 7, pp. 1979–1988, 1988 "Complete structure and organization of immunoglobulin heavy chain constant region genes in a phylogenetically primitive vertebrate".

Schwager, J., et al, *Proc. Natl. Acad. Sci. USA*, vol. 85, pp. 2245-2249, Apr. 1988 Immunology "Amino acid sequence of heavy chain from *Xenopus laevis* IgM deduced from cDNA sequence: Implications for evolution of immunoglobulin domains".

Roth, M.E., et al, *Science*, vol. 241, pp. 1354–1358, Sep. 9, 1988 "Selection of Variable–Joining Region Combinations in the  $\alpha$  Chain of the T Cell Receptor".

(List continued on next page.)

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#### (57) ABSTRACT

The present invention relates to single domain ligands derived from molecules in the immunoglobulin (Ig) superfamily, receptors comprising at least one such ligand, methods for cloning, amplifying and expressing DNA sequences encoding such ligands, preferably using the polymerase chain reaction, methods for the use of said DNA sequences in the production of Ig-type molecules and said ligands or receptors, and the use of said ligands or receptors in therapy, diagnosis and catalysis.

### 21 Claims, 23 Drawing Sheets